# Decision Memo

## Bonanza Plantation Fire Salvage

Mt. Hood National Forest
Clackamas River Ranger District

On July 8, 2004 a fire started in the engine compartment of a log loader at Unit 8 of the Bonanza III Timber Sale. The fire burned out of control and spread to the forest eventually burning 8 acres before being contained. All 8 acres are in unit 8, a 47-year old plantation, where thinning had just been completed at the time of the fire. The trees are approximately 15 inches in diameter and 80% of the trees have been killed or scorched to the point where mortality is imminent. The project is located in section 2, T. 7 S., R. 6 E., WM, Clackamas County, Oregon.

The objectives of the proposal are to salvage wood products before they decay and to replant the burned area.

**Proposed Action**

The proposed action is to cut and remove approximately 44 dead and dying trees per acre on approximately 8 acres. Trees to be cut range from 9 to 20 inches in diameter with an average of approximately 15 inches. Approximately 18 trees per acre would be retained. These include two trees per acre that are obviously dead (snags) and the rest would be the trees with the greatest likelihood of survival even though it is likely that many of them would die. No roads would be constructed. A log loader would be used to move the logs to the landing.

The project's leave trees would be included in a 5-year region-wide monitoring program to track the survival of fire-damaged trees.

**Reasons for Categorical Exclusion**

I find the proposed action can be categorically excluded from documentation in an EA or EIS because it fits category 31.2-13, described in Forest Service Handbook id_1909.15-2003-2, July 23, 2003. This category is for "salvage of dead and/or dying trees not to exceed 250 acres, requiring no more than ½ mile of temporary road construction. The proposed action may include incidental removal of live or dead trees for landings, skid trails, and road clearing." This proposal is to salvage approximately 8 acres of dead and/or dying trees. No roads would be constructed.

I find the proposed action can be categorically excluded because there were no extraordinary circumstances identified by the interdisciplinary team of resource scientists that analyzed this proposal.

- There would be no adverse impacts to the following resources: threatened, endangered or proposed species or their critical habitat or sensitive species; flood plains, wetlands or municipal watersheds; Congressionally designated areas such as wilderness, wilderness study areas or national recreation areas; inventoried roadless areas; research natural areas; American Indian religious or cultural sites; archaeological sites or historic properties or areas.

- Biological Evaluations were prepared for sensitive, threatened or endangered wildlife, fish and botanical species.

    - The project does not alter nesting, roosting, foraging or dispersal habitat for northern spotted owls, but does have a disturbance effect due to the noise associated with equipment. A seasonal restriction would minimize the effects of noise. Disturbance would not occur between March 1st and July 15th. The rating for owls would be "May Affect, Not Likely to Adversely Affect" for disturbance. The disturbance is covered by the Programmatic Biological Assessment for Activities with the Potential to Disturb Northern Spotted Owls and/or Bald Eagles in the Willamette Province for FY 2004-2005.

    - The project is approximately 0.9 mile from listed fish in the Collawash River. The project would have a rating of "No Effect" for listed fish. Log haul would be restricted to the dry season.

    - Botanical surveys revealed the presence of the lichen *Leptogium cyanescens*, a sensitive species found in one location on a vine maple stem. It is generally thought to require habitats with lower light levels and higher humidity. Because of thinning and the fire, the conditions in the project area may not be conducive to the persistence of this species in this unit with or without salvage logging. Mitigations adopted that would result in a "No Effect" determination for this lichen, include; restrict equipment to areas outside the unburned islands, falling

trees away from unburned islands, avoiding yarding logs through unburned islands, and retain leave trees near the unburned islands if available.

**Public Scoping**

A notice was sent to a list of interested groups and individuals. Comments were received suggesting that the project be cancelled. I have considered these comments and the recommendations of certain scientific reports including the "Beschta Report" and a document titled Postfire Management on Forest Public Lands of the Western United States by Beschta et al. in the journal Conservation Biology - August 2004. The response to substantive comments is found in Appendix A.

**Findings of Consistency**

I have determined that the proposed action is consistent with the Standards and Guidelines of the Mt. Hood National Forest Land and Resource Management Plan as amended by the Northwest Forest Plan (Forest Plan).

The project is in the B8 - Earthflow land allocation of the Forest Plan. Dead trees do not contribute much to earthflow stability because they no longer transpire moisture from the ground or intercept snowfall. In the long term, reforesting the burn would contribute to earthflow stability. The earthflow standard and guideline B8-36 states that ground machine yarding of logs should not occur. When the original clearcut was harvested in the 1950s the primary system used was a highlead cable logging system. Highlead logging results in some soil impact from dragging logs. A skyline system was used for the recent thinning to achieve one end suspension of logs. The current proposal will use a loader logging system in which logs are picked up and moved toward existing landings. No actual skidding would occur and loaders would operate on existing disturbed areas or on beds of slash where possible. Monitoring of similar loader logging operations has shown little compaction. I have considered other logging system options such as skyline and helicopter but these systems would not be viable for such a small unit with small timber. The cost of moving in equipment alone would be prohibitive.

Page Four-45 of the Forest Plan discusses the process for documenting exceptions to "should" standards and guidelines. I am allowing an exception to B8-36 because: 1) a site-specific examination of the ground indicates that the existing level of detrimental soil impacts from past activities when added to any new disturbance created by loader logging would not alter surface hydrology or exceed the Forest Plan standards for soil disturbance; and 2) the benefits of loader logging systems were not well understood at the time the Forest Plan standards were written. I find that the proposed action is consistent with the goal of earthflow management, which is to maintain hydrologic and physical balances to prevent reactivation or acceleration of earthflows.

- The Collawash/Hot Springs Fork Watershed Analysis has been completed. This project is consistent with its recommendations.

- The project is not within Riparian Reserves.

- Ground disturbance and alteration of live vegetation would be minimal. Mitigations for season of operation and erosion control would keep sedimentation to low levels. Based on field observations, the degree of cumulative soil impact would be within Forest Plan standards.

**Decision and Rationale**

It is my decision to proceed with this project because it will provide forest products and will reforest the burned plantation.

**Appeal Rights**

This decision is not subject to appeal pursuant to Forest Service regulations at 36 CFR 215.4.

**Implementation**

Implementation of this decision may occur immediately.

**Contact Person**

For further information contact Jim Rice.

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/S/ *Tom Mulder* 8/11/04

**TOM MULDER** **Date**
Acting District Ranger

# Response to Comments

Agency response is in italics and yellow highlight

BARK submitted the following comments:

A trip to the site has generated a number of questions and concerns based on what was observed on the way to the site and what was observed at the site. The observations made at other logged Bonanza units on the way into the site are important since they indicate a pattern of opportunistic judgment, poor plan implementation, and careless execution, which raises an unexpected but important question: should this problematic behavior be (potentially?) rewarded by the awarding of a salvage contract?

The site itself is situated at a comparatively low elevation and relatively flat terrain. The approach to the site takes you through wet-lands (indicated by soil condition and riparian plant species) containing late-seral cedar and Douglas-fir. At the site, water running adjacent to 6311-150 pools into mosquito breeding puddles. Just as it is important to view the potential salvage sale in a context relative to the logging that created it; it is of equal important to view the surrounding forest ecosystem in order to be able to appreciate the environment this unit will draw from whether or not it is salvaged. The quantity of moisture (still easily observable in August) and quality of adjacent land will allow the land to heal more quickly and more easily than if the fire had occurred in a steeper, higher, drier landscape. A photo was included that showed and area outside the project area with a road that has alders on each side.

Further, the observations from the site itself prove to be troubling. The ground was fully burned with one puddle of aluminum seen at the side of the road. But, as intense as the fire may have been, there is newly growing bracken fern colonizing the area with surviving Oregon grape and salal. Crown scorch was clearly not used to generate the predicted mortality since the crowns of nearly 80% of the observed trees one month after the fire were in good condition. While bark scorching can be used as a proxy for predicting cambium damage, the results of this prediction would need to include other factors (fire intensity, bark thickness, crown scorch, etc.). The actual taking of core samples or axing through the bark at four quadrant points has proven to be so damaging that it is not recommended. *The prediction of mortality involves professional judgment by experts with experience with similar burns and timber types. A similar burn on the District was visited several years afterward. The result of that experience was that young Douglas-fir died even though they appeared to have green live crowns and minimal bole scorch.*

Many, if not most, of the largest trees were observed to have large and fully green crowns; yet they were marked with blue paint indicating they would be taken. An inverse pattern appears to explain which trees were chosen as “leave trees;” these trees are smaller than the “take trees” and are already dead. This observation appears to indicate a “gold rush” mentality in regards to the fire and salvage. *In this project, blue*

*paint is being used to designate leave trees (because orange paint was already present on all of the trees).*

Finally there is the question regarding the necessity and/or advisability of salvage logging burned ground. While there is significant controversy on this subject, the majority of the peer-reviewed scientific literature on post-fire forest ecosystems indicates that the damage done by post-fire salvage logging (compaction of damaged soils that leads to lost timber productivity, erosion, introduction of exotic weeds, loss of habitat, loss of snag and down-wood based water reservoirs, loss of nutrients from the snags and downed wood, etc.) greatly outweighs any ecosystem restoration due to the logging. These myriad and multi-faceted negative effects due to salvage logging has caused wide-spread, though not universal, acceptance that post-fire salvage logging has greater negative effects on ecosystems than leaving the fire-bared soils. *The project has been designed to avoid most of the generic fire salvage concerns raised by the "scientific literature." No large old-growth trees would be removed, no steep slopes are present, snag habitat would be retained, contract provisions for equipment cleaning minimize risk of exotic weed introduction.*

Two eco-system aspects of post-fire landscapes identified in the Cloak Thinning Preliminary Assessment further reinforce the idea that this burned landscape should be allowed to heal on its own:

> Rather than generate forage enhanced areas by logging mini-clearcuts as proposed by the Cloak plan (as a method of mimicking the openings that were historically created by fire), *While the Cloak project is not particularly relevant to the current fire salvage, the small forage enhancement areas proposed for Cloak are in no way intended to mimic historically created fire patterns. Historically, fires that created forage were very large; in the order of thousands of acres.* leave the burned acres alone so as to let this fire generate the forage enhancement as was the historical norm on the Mt. Hood National Forest. *The project area is open enough to provide forage whether salvaging occurs or not. Eight acres of additional forage will be a short-term positive effect for deer and elk but the small size would be barely noticeable at the landscape scale.*
>
> The discussion of snag needs of migratory birds that prefer early-seral environments noted that traditional clearcuts had not left enough snags for the early-seral areas to be useful. If this burned land is left alone, this issue would be solved as well. *The project will leave 18 relatively small trees per acre; two dead and others that may eventually die. It is not likely that leaving all of the dead small trees on 8 acres would provide a significant benefit to migratory birds.*

**Conclusion**

This brings us back to the question regarding the need to salvage log. If the primary goal is to maintain forest productivity, then the answer is clearly no, because of the short-term and long-term damage done by logging in the fragile post-fire landscape.

*The purpose of this project is to salvage timber before it decays and to reforest the burned area. The project includes sufficient protections to maintain forest productivity.* The geography of this site (shallow, wet, lowland) combined with elements from its adjacent forest (late-seral forest with its well developed cornucopia of flora and fauna) indicate that this site will regenerate fairly well if left alone. *The area may be able to reseed conifers to establish a new forest if left alone, however the proposed action examines another way to reforest that involves planting trees.* Finally, rewarding sloppy contractors with a salvage sale from a fire they caused should be avoided. *The fire was the result of an accident. No sloppy or negligent actions occurred. The dead and dying trees would be sold to the highest bidder using standard auction procedures.*

Observations on the way to BF Salvage:

Unit 225 had intermittent streambed used as skid-trail.
Unit 225 had a marked leave tree sitting in an intermittent stream bed used for a cable tie-off and was logged.
Many units with chewed-up and exposed soil.
Large tree (28" diameter) from outside unit 5 used as a cable tie-off then logged and brought into the unit.
Heavy equipment from logging unit 24 was used to drag 100' of a large tree (31" diameter) out of a forest stand adjacent to unit 24 and then cut it into "biscuits."
Significant bark damage to leave trees (observed here and at Guard sale)
Marked "leave trees" cut.
A photo was included claiming to show Unit 225, where the intermittent streambed was used as a skid trail.

ONRC submitted the following:

Even though this project is small and in a young managed stand, there are a number of concerns I have with it. First, were there repercussions for the logging company that started the fire? Will they be precluded from purchasing this project? If there were no serious penalties for the responsible party and the same individuals are free to operate on the project that has developed after they started a fire, this project essentially rewards negligent, irresponsible actions of a commercial enterprise operating on public lands. There must be strong disincentives for accidental or arson fires on public lands. Commercial enterprises that benefit from fires such as logging and fire suppression contractors should not be able to directly benefit from fires they start. If precautions are not established to insure that this does not occur, the USFS is rewarding parties that start fires on public lands. If USFS intends to do a contract modification to the contractor operating on Bonanza III, a federal agency will have clearly rewarded a private company that caused accidental/arson fires on public land. This would simply not be acceptable. *The fire was the result of an accident. No negligent or irresponsible actions occurred.*

*The dead and dying trees would be sold to the highest bidder using standard auction procedures.*

Post fire logging causes more damage than green tree logging. Soils are usually more fragile following a fire. *The fire did not burn hot enough to damage soils.* The one page (CE?—USFS never discloses the process) includes only the age of the stand and the acres affected by the fire. There is no discussion of the current condition of soil degradation following logging and fire suppression activities. Do more than 1.6 acres of the 8 acres affected by the fire have negative soil impacts from a combination of the original logging, thinning, and fire suppression? *The original clearcut used a highlead logging system and broadcast burning that resulted in a combined detrimental soil condition of approximately 5%. This figure was estimated by examining aerial photographs from 1967 that clearly show ground disturbance. This figure includes landings, cable corridors, fire lines, and incidental use of tractors off landings. Some of that detrimental condition has naturally recovered in the 47 years since then as duff reestablished and tree roots penetrate the soil. The subsequent thinning used the same landings and a skyline system with a mechanical tree feller. Mechanical tree fellers walk on beds of slash and past monitoring indicates that they result in little or no detrimental soil impact. The fire resulted in some duff consumption but there is no evidence of severely baked (red) soils and the fire line was constructed by hand. The proposed action is to use a loader to pick up logs and move them to the landing. It is estimated that the combined detrimental soil condition considering all past and currently proposed activities would be less than 8%.*

What are the plans for rehabilitation of the soil, suppressing invasive weeds, and planting native plants that are in line with successional pathways? *The soil was not damaged by the fire and restoration of soil is not needed. Native conifers will be planted. Contract provisions for equipment cleaning and inspection would minimize the risk of introduction of invasive weeds.* Salvage is only one type of activity the USFS should consider following fire. Too often, salvage is the only activity that goes on. Salvage has no legitimate ecological motivation, only an economic one. USFS should review the latest Beschta et al article ("Postfire Management on Forested Public Lands of the Western United States" published in this month's issue of Conservation Biology: Volume 18, Number 4, page 957-967) on post-fire activities and follow its recommendations on all activities, not just salvage. I have attached the article with my comments. Do note that the authors of this report advise strongly against ground-based, post-fire logging. USFS has an obligation to follow the best available science and disclose to the public its plans on how this is going to be accomplished. *The project has been designed to avoid most of the generic fire salvage concerns raised by the article. Soils were not damaged because the fire intensity was not that great, no large old-growth trees would be removed, no large snags are present, some small snags created by the fire would be retained, no steep slopes are present, and contract provisions for equipment cleaning would minimize risk of exotic weed introduction.*

Trees that have survived the fire are stressed and damaged. Further degradation by logging equipment from soil compaction and cribbing can kill trees that would have

survived. *The logging system chosen will not cause leave trees to die that would otherwise have survived the fire.*
Please provide detail about the process by which this project is moving forward and a complete analysis of the soil conditions in the project area. *See above.*

# Biological Evaluation for Bonanza Plantation Salvage

**Proposed, Endangered, Threatened, and Sensitive Fish Species**

Mt. Hood National Forest
Clackamas River Ranger District

## Introduction

Forest management activities that may alter the aquatic habitat or affect individuals or populations of PETS (Proposed, Endangered, Threatened, and Sensitive) fish species require a Biological Evaluation (BE) to be completed (FSM 267l.44 and FSM 2670.32) as part of the National Environmental Policy Act process to determine their potential effects on sensitive, threatened or endangered species. The Biological Evaluation process (FSM 2672.43) is intended to conduct and document activities necessary to ensure proposed management actions will not likely jeopardize the continued existence or cause adverse modification of habitat for:

A. Species listed or proposed to be listed as endangered (E) or threatened (T) by the USDI Fish and Wildlife Service or National Marine Fisheries Service (NOAA Fisheries).

B. Species listed as sensitive (S) by USDA-Forest Service Region 6.

This Biological Evaluation addresses a proposal to cut and remove dead and dying trees on approximately eight acres within unit 8 of the Bonanza III Timber Sale. The area was burned when fire started during logging operations. The burned area is within a 47-year old plantation, where thinning had just been completed. Approximately 80% of the trees within the fire perimeter have been killed. The project objective is to salvage wood products before they decay and to replant the burned area. The project area is located within the Lower Collawash River Tribs subwatershed of the Collawash River 5$^{th}$ field watershed in section 2, T. 7S., R.6 E., Willamette Meridian, Clackamas County, Oregon.

## Proposed Action

The proposed action is to cut and remove dead and dying trees on approximately 8 acres within the Collawash River watershed. The project area is located within the Slide Creek subwatershed, an intermittent non-fish bearing tributary to the Collawash River. The project is within a B8-Earthflow land allocation and is outside of any Riparian Reserve. Trees to be cut are generally smaller than 18 inches in diameter with an average of approximately 15 inches. Eighteen trees per acre would be retained. These would be selected from trees with the greatest likelihood of survival. No roads will be constructed to access the site. Trees will be hand felled and a log loader would be used to move the logs to the landing. The burned area will be replanted following project activities.

This project is consistent with Forest-wide standards and guidelines of the Mt. Hood Forest Plan and recommendations in the Collawash/Hot Springs Fork Watershed Analysis.

Summary of Effects to listed, proposed, candidate, and sensitive species.

| **ESU Species/Status** | **Date of Listing** | **Habitat Present** | **Species Present** | **Effects of Action** |
|---|---|---|---|---|
| | | | | |
| ***Threatened*** | | | | |
| **Lower Columbia River steelhead** (*Oncorhynchus mykiss*) | 3/98 | No | No | NE |
| **Columbia River Bull trout** (*Salvelinus confluentus*) | 5/98 | No | No | NE |
| **Upper Willamette River chinook** (*Oncorhynchus tshawytscha)* | 3/99 | No | No | NE |
| Lower Columbia River chinook **(*Oncorhynchus tshawytscha)*** | 3/99 | No | No | NE |
| Columbia River chum salmon (*Oncorhyncus keta)* | 3/99 | No | No | NE |
| | | | | |
| **Proposed** | | | | |
| **Lower Columbia River coho** *(Oncorhynchus kisutch)* | NA | No | No | NE |
| | | | | |
| **Sensitive** | | | | |
| **Redband Trout** *(Oncorhynchus mykiss ssp.*) | NA | No | No | NI |
| | | | | |
| Aquatic Mollusk *Survey & Manage Species* | | | | |
| | | | | |
| Basalt juga snail ***Juga (O.) sp. 2*** | NA | No | No | NI |
| Columbia dusky snail ***Lyogyrus n. sp. 1*** | NA | No | No | NI |
| | | | | |

**NE** – No Effect
**NLAA** – May affect not likely to adversely affect
**LAA** – May affect likely to adversely affect
**NI** – No Impact
**MIIH** – May Impact Individuals or Habitat but will not likely contribute to a trend towards federal listing
or loss of viability to the population or species.

**Listed, Proposed, Candidate, and Sensitive Species**

**Columbia River Bull Trout**
*(Salvelinus confluentus)*
Threatened (USFWS)

Columbia River bull trout are presently found in the Hood River drainage. Bull trout presence has been documented in Middle Fork Hood River, Clear Branch Creek both above and below Clear Branch dam, Pinnacle Creek, Coe Branch Creek, and Eliot Branch Creek. This bull trout population is the only known population occurring on the Forest. Bull trout populations occurring in the Middle Fork Hood River are found primarily within Laurance Lake Reservoir and adjacent Clear Branch and Pinnacle Creeks. The Clear Branch Dam has altered this subpopulation of bull trout from a fluvial to an adfluvial form. Adult fish reside in the reservoir and move into Clear Branch as early as June and spawn mainly during September, before moving back into the reservoir. It is known that a small number of individuals within the Hood River annually move into the Columbia River with some returning into the Hood River.

Bull trout were once prolific in the Clackamas River system. At present, they are believed to be extinct. There are unconfirmed reports of their presence in the Sandy River basin in the late 1950's. However, recent fish sampling conducted in both the Sandy River and Clackamas River drainages failed to uncover any bull trout presence.

Bull trout reach sexual maturity between four and seven years of age and are known to live as long as 12 years. Bull trout spawn in the fall and require clean gravel and cold-water temperatures for egg incubation. Although adults can stand water temperatures up to 8o C, incubation of eggs is best with temperatures no more than 2o C (36o Fahrenheit). Bull trout fry utilize side channels, stream margins, and other low velocity areas. Fluvial adults require large pools with abundant cover in rivers. Some bull trout remain residents within the area in which they hatch, while others migrate from streams to lakes or the ocean. Presumably, the various forms of bull trout interbreed, which helps to maintain viable populations throughout their range.

**Lower Columbia River Steelhead**
(*Oncorhynchus mykiss*)
Threatened (NOAA Fisheries)

Lower Columbia River steelhead occur in the Clackamas River, Sandy River, and Hood River basins. They also occur in the West Columbia Gorge tributaries. Adult winter steelhead enter rivers and streams on the Forest primarily during April through June with peak migration occurring in May. A small run of summer steelhead occurs in the Hood River. These fish enter the mainstem Hood River from June through September. Steelhead use the majority of the mainstem rivers and tributaries as spawning and rearing habitat. Adult steelhead spawn in late winter to spring (January–June), depending in part on the run type (summer or winter steelhead), discharge and water temperature. Winter steelhead fry emerge between late June and late July and rear in freshwater habitat for one to three years. Juvenile steelhead during their first year, usually are found in riffle habitat but some of the larger juvenile steelhead will be found in pools and faster runs. Smolt emigration takes place March thru June during spring freshets.

**Upper Willamette River Spring Chinook**
(*Oncorhynchus tshawytscha*)
Threatened (NOAA Fisheries)

Upper Willamette River spring chinook salmon occur in the Clackamas River. The ESU consists of both naturally spawning and hatchery produced fish. These spring chinook enter the Clackamas basin from April through August and spawn from September through early October with peak spawning ocurring the 3rd week in September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries.

Adults in the Lower Clackamas drainage spawn in Eagle Creek, below River Mill Dam and between River Mill and Faraday diversion dams. Spawning in the upper Clackamas drainage has been observed in the mainstem Clackamas from the head of North Fork Reservoir upstream to Big Bottom, the Collawash River, Hot Springs Fork of the Collawash River, lower Fish Creek, South Fork Clackamas River and Roaring River.

**Lower Columbia River Fall Chinook**
(*Oncorhynchus tshawytscha*)
Threatened (NOAA Fisheries)

Lower Columbia River chinook salmon occur in the Sandy River, Hood River, and Clackamas River basins. They also occur in the West Columbia Gorge tributaries. These stocks are made up of both a spring run and a fall run component. The spring run occurs in the Hood River and Sandy systems, while fall run chinook are present in the Clackamas River and Sandy Rivers. Most spring chinook salmon in the Hood River basin ascend the West Fork Hood River, and based on available information, use appears to be low in the Middle Fork Hood River. Spring chinook in the Sandy River basin utilize the mainstem Sandy River and upper basin tributary streams such as the Salmon River, Zigzag River, Still Creek, and Clear Fork of the Sandy River. They enter these watersheds from April through August and spawn from August through early October. The fall chinook occurring within the Sandy and Clackamas Rivers primarily spawn and rear in the mainstem and larger tributaries downstream from Forest lands.

The fall chinook within the Clackamas Subbasin are thought to originate from "tule" stock which was first released into the subbasin in 1952 and continued until 1981. Since 1981 no fall chinook have been released into the Clackamas River. However some adult fall chinook released as juveniles above Willamette Falls may have strayed into the Clackamas River.

**Columbia River Chum Salmon**
(*Oncorhynchus keta*)
Threatened (NOAA Fisheries)

The lower Columbia River fall chum salmon spend most of their life in a marine environment. Adults typically enter spawning streams ripe, promptly spawn and die all within two weeks of arrival. Adults are strong swimmers, but poor jumpers and are restricted to spawning areas below barriers, including minor barriers that are easily passed by other anadromous species.

Peak spawning occurs between late October and early November. Juveniles after emergence migrate to estuaries where they rapidly adapt to the marine environment. This usually occurs between March and June. The brief stay in the estuarine environment appears to be important for smoltification and early feeding and growth. Mature chum spend anywhere from 6 months to 6 years in the ocean environment.

Oregon is near the southern limit of the species distribution in North America. Historically, the species spawned in the Columbia Basin up to Cascade Rapids and in coastal streams south to the Coquille River. Some chum salmon populations have become depressed or even extinct in Oregon subbasins of the lower Columbia River (ODFW, 1995). Conditions on the Oregon side of the Columbia River are poorly suited for natural production of chum. Spawning habitat is poor or inaccessible. According to the 1886 Bulletin of the US Fish Commission chum historically inhabited the lower Clackamas River, but according to ODFW there are no current records to confirm chum presence. According to ODFW (1995) the last area of a historic population of chum within the lower Columbia River on the Oregon side is the Multnomah Channel (near Scappoose).

**Lower Columbia River Coho Salmon**
(*Oncorhynchus kisutch*)
Proposed for listing (NOAA Fisheries))

The NOAA Fisheries is currently reviewing all Lower Columbia River coho stocks for possible listing under the Endangered Species Act. The Oregon Department of Fish and Wildlife has listed coho as a state threatened species. Coho are also included on the Forest Service Region 6 sensitive species list. Coho stocks occurring on the Forest are currently found in the Sandy and Clackamas River systems. They are also found in the West Columbia Gorge tributaries. The indigenous run of coho salmon in the Hood River is considered extinct. Very few coho ascend the Hood River at present and those are considered to be hatchery strays.

The Clackamas River contains the last important run of wild late-run winter coho in the Columbia Basin. Coho salmon occupy the Clackamas River and the lower reaches of streams in the Upper Clackamas watershed including the Collawash River. Adult late-run winter coho enter the Clackamas River from November through February. Spawning occurs mid-January to the end of April with the peak in mid-February. Peak smolt migration takes place in April and May.

**Redband Trout**
(*Oncorhynchus mykiss ssp.*)
Sensitive (USFS, Region 6)

On the Mt. Hood National Forest, redband trout occur in streams flowing east from the crest of the Cascades. Redband rainbow trout occur in the White River, Mill Creek, Badger-Tygh, and Mile Creeks, watersheds on the Mt. Hood National Forest. Redband trout populations within the White River watershed are genetically distinct from those in the Deschutes River and are unique among other redband trout populations east of the Cascades. White River redband/inland rainbow trout are more closely related to those found in the Fort Rock Basin of central Oregon. Collections made on the Zigzag Ranger District have produced some rainbow trout that are suspected to be similar to the redband trout.

Like other salmonids, redband rainbow trout require adequate water quality and quantity, cover (provided by large and small wood, boulders, brush, substrate, and/or surface turbulence), invertebrate food, and various sizes and distributions of pool and riffle units. Preferred spawning substrate includes well-oxygenated, loose small to medium gravels. Spawning occurs in the spring, usually in riffles or the downstream end of pools. Fry emergence from the gravel normally occurs by the middle of July, but depends on water temperature and exact time of spawning. Rearing habitat is often along stream margins, associated with instream structure provided by boulders, brush and wood. These habitats also provide cover from predation and are used for feeding lanes. Redband rainbow trout prefer water temperatures from 10-14 C, but have been found actively feeding at temperatures up to 25 C in high desert streams of Oregon and have survived in waters up to 28 C.

**Survey and Manage Species**

**Columbia Dusky Snail**
(*Lyogyrus n. sp. 1*)
C3 species *Survey and Manage* (ROD)

This species of aquatic mollusks has a very sporadic distribution in the central and eastern Columbia Gorge, WA and OR. Known sites on the Mt. Hood National Forest occur in Clackamas, Multnomah, and Hood River counties. Lyogyrus have been identified in the Upper Clackamas, Lower Clackamas, and Oak Grove Fork watersheds.

This species occurs in cold, well oxygenated springs and spring outflows on soft substrates in shallow, slow-flowing areas where it appears to feed on decaying organic particles. It prefers areas without macrophytes (macroscopic emergent and submerged aquatic plants), but may also occur in areas with watercress and water hemlock. It co-occurs with *Pristinicola hemphilli* and Juga (*Oreobasis*) spp., which are typically found in small, cold, pristine springs.

**Basalt Juga**
(*Juga (Oreobasis*) n. sp. 2
C3 species *Survey and Manage* (ROD)

This species occurs sporadically in springs in the central and eastern portions of the Columbia Gorge, OR side only: Hood River and Wasco counties Oregon, including sites in Mt. Hood National Forest and sites in the Columbia Gorge National Scenic Area. It is known to occur at 28 sites.

This species occurs in small, shallow, undisturbed perennial springs and small springs that flow into the Columbia River. It prefers gravel substrates where watercress is usually present. Occupied springs are often surrounded by basalt talus. It appears to graze on periphyton and perilithon.

**Effects Determination**

The proposed action will not adversely impact listed, proposed, candidate, or sensitive fish species or their habitat in the Collawash River watershed. This project warrants a **"No Effect" (NE)** determination for Lower Columbia River steelhead, Lower Columbia River chinook, Upper Willamette River chinook, Columbia River bull trout, Columbia River chum and Lower Columbia River coho salmon. A **"No Impact" (NI)** determination is appropriate for Redband trout. This effects determination is based on the following reasons:

- The proposed project is located outside of Riparian Reserves. There will be no salvage logging or equipment operating within riparian areas. The vegetative buffer of the riparian reserve will act as an effective barrier to any sediment being transported into stream channels by surface erosion or run-off, precluding any adverse direct impacts from sedimentation.
- The absence of fish-bearing streams within the project area. The only stream in the vicinity of the project area is Slide Creek, a non fish-bearing intermittent tributary to the Collawash River. The proposed project described in the Bonanza Plantation Salvage CE is located approximately 0.9 miles from any occurrence of Upper Willamette River chinook, Lower Columbia River steelhead, or Lower Columbia River coho salmon.
- Lower Columbia River chinook and Columbia River chum occur over 25 miles downstream of the project area in the Lower Clackamas River below River Mill Dam.
- Columbia River bull trout are believed to be extinct within the Clackamas River Basin.
- No new road construction will occur. Log haul will take place on well-rocked or paved roads. Log haul will be restricted to dry weather when road related runoff is not present.

The impact determination for aquatic survey and manage species *Lyogyrus n. sp. 1, and Juga (Oreobasis)* is **"No Impact" (NI).** This determination is appropriate because there is no suitable habitat available for these species within the project area.

**Essential Fish Habitat**

Essential Fish Habitat (EFH) established under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation). EFH includes all streams, lakes, ponds, wetlands, and other water bodies currently, or historically, accessible to salmon in Washington, Oregon, Idaho, and California. Three salmonid species are identified under the MSA, chinook salmon, coho salmon and Puget Sound pink salmon. Chinook and coho salmon occur on the Mt. Hood National Forest in the Clackamas River, Hood River, and Sandy River basins. Chinook and coho salmon utilize the Collawash River for rearing and spawning habitat. The proposed project is located approximately 0.9 miles above any habitat that could be utilized by these species. Implementation of the project covered in this CE will have **No Effect** on essential fish habitat for chinook or coho salmon. The proposed project will not have any effect on water or substrate essential to the life history of coho, chinook, or chum salmon that occur within any basin on the Mt. Hood National Forest.

/s/ Robert Bergamini
Fisheries Biologist
Clackamas River Ranger District

8/11/2004

**2004 Bonanza Plantation Fire Salvage- Biological Evaluation and Wildlife Input**

Clackamas River Ranger District, Mt. Hood National Forest

8/09/04

**Location:** The project is located within the Collawash watershed in section 2, T.7 S., R.6 E., W.M, Clackamas County, Oregon.

**Background Information:** In the summer of 2004, a fire started in the engine compartment of a log loader at Unit 8 of the Bonanza III Timber Sale. The fire burned out of control and spread to the forest eventually burning 8 acres before being contained. All 8 acres are in unit 8; a 47-year old plantation, where thinning had just been completed at the time of the fire. The trees are approximately 15 inches in diameter and approximately 80% of the trees have been killed.

**Proposed Action:** The proposed action is to cut and remove dead and dying trees on approximately 8 acres. Trees to be cut are generally smaller than 20 inches in diameter with an average of approximately 15 inches. No old-growth trees will be harvested. 18.5 trees per acre would be retained. These would be selected from trees with the greatest likelihood of survival. No roads would be constructed. A log loader would be used to move the logs to a landing.

**Forest Plan Compliance:** The project coincides with the wildlife standards and guidelines included in the Mt. Hood National Forest Plan and the Northwest Record of Decision for Management of Habitat for Late-Successional and Old-Growth Related Species Within the Range of the Northern Spotted Owl, as amended.

**Seasonal Restrictions:** Any noise-disturbing activities associated with the project that is above the ambient noise level of the area will not be implemented during the critical breeding period for the spotted owls (March 1st to July 15th). This includes activities such as use of motorized logging equipment and chainsaws.

## ENDANGERED, THREATENED, AND SENSITIVE SPECIES

The attached Executive Summary serves as the documentation to display effects of the 2004 Bonanza Plantation Fire Salvage on endangered, threatened, and sensitive species on the Clackamas River Ranger District. The project area has no habitat available for any of these species except for the spotted owl.

**Northern Spotted Owl (Threatened):** There is no Late-Successional Reserve (LSR) or Critical Habitat Unit occurring at or adjacent to the project site.

The project site is considered non-habitat for the spotted owl. There would be no modification of either suitable or dispersal habitat for the northern spotted owl in conjunction with this project.

Spotted owl suitable habitat occurs within 65 yards of the project site. Due to the use of chainsaws and motorized equipment for the project, noise produced by these proposed activities is predicted to be above the ambient noise level of the area.

This project falls within the Programmatic Biological Assessment and resultant Opinion for Activities with the Potential to Disturb Northern Spotted Owls and/or Bald Eagles in the Willamette Province for FY 2004-2005. If the project is implemented between July 16th and September 30 the effects call will be a May Effect, Not Likely to Adversely Affect. If the activity occurs between October 1st and February 28th the effects call is a No Effect. Project implementation will be avoided during the critical breeding period of March 1st to July 15th to avoid a Likely to Adversely Affect call.

**BE EXECUTIVE SUMMARY: 2004 Bonanza Plantation Fire Salvage**

| SPECIES | HABITAT PRESENCE | SPECIES PRESENCE? | EFFECT CALL* |
|---|---|---|---|
| **Threatened** | | | |
| Northern Spotted Owl | **Yes-within 65 yards** | **Possible –within the adjacent suitable habitat** | **MA-NLAA for disturbance only** |
| Bald Eagle | **No** | **No** | **NE** |
| Canada Lynx | **No** | **No** | **NE** |
| **Sensitive** | | | |
| Oregon Slender Salamander | **No** | **No** | **NI** |
| Larch Mountain Salamander | **No** | **No** | **NI** |
| Cope's Giant Salamander | **No** | **No** | **NI** |
| Cascade Torrent Salamander | **No** | **No** | **NI** |
| Oregon Spotted Frog | **No** | **No** | **NI** |
| Painted Turtle | **No** | **No** | **NI** |
| Northwestern Pond Turtle | **No** | **No** | **NI** |
| Horned Grebe | **No** | **No** | **NI** |
| Bufflehead | **No** | **No** | **NI** |
| Harlequin Duck | **No** | **No** | **NI** |
| Peregrine Falcon | **No** | **No** | **NI** |
| Gray Flycatcher | **No** | **No** | **NI** |
| Baird's Shrew | **No** | **No** | **NI** |
| Pacific Fringe-tailed Bat | **No** | **No** | **NI** |
| California Wolverine | **No** | **No** | **NI** |
| Pacific Fisher | **No** | **No** | **NI** |

***NE = No effect**

**NI = No Impact**
**MA-NLAA = May Affect, Not Likely to Adversely Affect**

## Snags:

The Mt. Hood Forest Plan Standards and guidelines state that "Where new timber harvest units occur (e.g. regeneration harvest and commercial thinning), wildlife trees (i.e. snags and green reserve trees) should be maintained in sufficient quantities and quality to support over time at least 60% of the maximum biological potential of primary cavity nesting species, e.g. woodpeckers. (FW-215).

Within this habitat type, 2.2 snags per acre equates to 60% biological potential for primary cavity nesting species (Austin and Mellen, 1995). This comes to approximately 18 snags needed post-harvest in the project area.

The proposed action will leave 18.5 trees per acre that have the greatest likelihood of survival. However, due to the severity of the burn in one portion of the project area, it is likely that many of the trees selected for retention will become snags in the near future. A field check occurred after marking of the leave trees to insure that snag retention guidelines would be met. A minimum of 18 trees were marked to leave that were either already dead or would likely die within the next year or so.

## Down Woody Debris:

Since the NW Forest Plan has no clear guidance on the amount of down wood to leave in salvage operations, the Mt. Hood Forest Plan requirement concerning down wood is more applicable and is as follows: "An average total of 6 logs per acre in decomposition class 1, 2, and 3 should be retained…." Try to leave logs that represent the largest tree diameter class present in the stand and that are some of the longer pieces in length. Additional decomposition class 4 and 5 logs may also be retained. (Down Woody Debris Definitions found in USDA Forest Service 1985, Brown editor).

Currently there are few down logs on site. It is likely that salvage operations will produce some additional down wood. There is also predicted to be recruitment of down wood in the future because of the over 18 dead or partially dead trees marked to leave in the residual stand as well as likely mortality of some of the residual live trees.

/s/ Sharon Hernandez
District Wildlife Biologist
8/9/04

**BONANZA FIRE SALVAGE PROJECT**

**PROPOSED, ENDANGERED, THREATENED, AND SENSITIVE PLANT, BRYOPHYTE, LICHEN AND FUNGI BIOLOGICAL EVALUATION**

## Project Location and Description

The proposed project area is located on the Clackamas River Ranger District in T.07S. R.06S. Section 02. It includes that portion of Bonanza Thinning Unit 8 that burned as the result of an industrial fire, totaling approximately eight acres. The existing condition is a stand of even-age 47 year old Douglas-fir (*Pseudotsuga menziesii*) with some western hemlock (*Tsuga heterophylla*). Most trees are 12 to 18 inches in diameter with a stocking level of approximately 100 trees per acre. The fire was of moderate intensity, consuming the fine fuels and humus layer down to mineral soil, and scorching the tree boles to a height of 15-25 feet. There are unburned islands of less than 0.10 acre that are dominated by vine maple (*Acer circinatum*) and rhododendron (*Rhododendron macrophyllum*).

The proposed action is to harvest fire-damaged trees not expected to survive long-term. It is anticipated that 18 trees per acre.

## Introduction

The objectives of the Biological Evaluation are as follows:

1. To ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or contribute to animal species or trends toward Federal listing of any species.

2. To comply with the requirements of the Endangered Species Act that actions of Federal agencies not jeopardize or adversely modify critical habitat of Federally listed species.

3. To provide a process and standard by which to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decisionmaking process.

To achieve these objectives, all Forest Service projects, programs, and activities are to be reviewed for possible effects on Proposed, Endangered, Threatened, and Forest Service Sensitive (PETS) Species and the findings documented in the Decision Notice (FSM 2672.4).

The three steps to complete a biological evaluation are outlined in US Forest Service Manual (2672.42, 2672.43). Step 4 may also be required in certain circumstances. The steps are as follows.

**Step 1. Pre-field Review:** Each area potentially affected by management actions is investigated for potential PETS plant habitat in the pre-field review. To determine whether potential habitat exists in the proposed project area a number of sources should be used including the Oregon Natural Heritage Database of rare species, MHNF PETS plants database, aerial photos,

topographic maps, and knowledge provided by individuals familiar with the area. Each PETS plant species documented or suspected to occur on the Mt. Hood National Forest is considered.

**Step 2. Field Reconnaissance:** Field reconnaissance is conducted when Step 1 has determined that there is potential for PETS species to occur within or adjacent to the project area. Surveys must be conducted during the time of year when the target species can be identified.

**Step 3. Risk Assessment:** If a PETS plant is found on or adjoining a site where an action is proposed, a risk assessment of the effects of the proposed action on the species and its habitats must be completed. A risk assessment considers (a) the likelihood of beneficial or adverse effects to the population or individuals from the proposed activities, and (b) the consequences of these effects to determine what the cumulative effects will be to the species as a whole. The risk assessment them makes a determination of No Effect, Beneficial Effect, or May Effect on the species and the process and rationale for the determination is documented in the environmental assessment or the environmental impact statement. Recommendations are offered for removing, avoiding, or mitigating for adverse effects.

**Step 4. Botanical Investigation:** When a risk assessment determines that information is not sufficient enough to assess the significance of the effects, a Botanical Investigation is required. This procedure involves additional investigation that essentially becomes background information for a conservation strategy. The result is a determination of significance of effects on species conservation and population objectives.

## RESULTS

### Step 1. Pre-field Review of Existing Information

The Region 6 Regional Forester's Sensitive Species List as revised July, 2004 was used to determine species or vascular plants, fungi, bryophytes and lichens that are documented from or suspected to occur on the Mt. Hood National Forest. Table 1 documents those species that have potential to occur in forested habitat within the vicinity of the proposed project area.

No Sensitive species sites are known from the proposed project area.

**Table 1.**

| *Species Name* | **Common Name** | **Habitat** | **Season** | **Habitat in Project vicinity?** |
|---|---|---|---|---|
| **Vascular Plants** | | | | |
| **Agoseris elata** | tall agoseris | Moist-dry meadow | June-Aug | No |
| **Arabis sparsiflora var. atrorubens** | sicklepod rockcress | Dry meadow, shrub-steppe | May-Aug | No |
| **Aster gormanii** | Gorman's aster | Dry cliffs, talus, rock slopes above 3500' | June-Sept | No |
| Astragalus tyghensis | Tygh Valley milkvetch | Shrub-steppe grassland | May-Aug | No |
| Botrychium lanceolatum lance-leaved grape fern | | Sub-alpine meadow, glacial till | July-Sept | No |
| Botrychium minganense | Mingan moonwort | Forested wetlands | June-Sept | Yes |
| **Botrychium montanum** | mountain grape-fern | Forested wetlands | June-Sept | Yes |
| **Botrychium pinnatum** | pinnate grape fern | Forested wetlands | June-Sept | Yes |
| **Calamagrostis breweri** | Brewer's reedgrass | Subalpine, moist – dry meadows | June-Sept | No |
| **Carex livida** | pale sedge | Wet-dry meadow, fen | June-Sept | No |
| **Castilleja thompsonii** | Thompson's paintbrush | Rock outcrops east of the Cascade Crest | July-Aug | No |
| **Cimicifuga elata** | tall bugbane | Mesic mixed hardwood-conifer forest | June-Sept | Yes |
| **Coptis trifolia** | 3-leaflet goldthread | Edge of forested fens | June-July | No |
| **Corydalis aquae-gelidae** | cold water corydalis | Forested seeps and streams | June-Sept | Yes |
| **Diphasiastrum complanatum** | ground cedar | Conifer forest | Apr-Nov | No |
| **Erigeron howellii** | Howell's daisey | Moist-dry cliffs, talus, rocky slopes | June-Sept | No |
| **Fritillaria camschatcensis** | Indian rice | Moist-dry meadow | June-Aug | No |
| *Howellia aquatilis* howellia | | Low elevation lakes and ponds | June-Sept | No |
| *Lewisia columbiana var. columbiana* | Columbia lewisia | Dry cliffs, talus, rocky slopes | June-Sept | No |

| *Species Name* | **Common Name** | **Habitat** | **Season** | **Habitat?** |
|---|---|---|---|---|
| **Vascular Plants** | | | | |
| **Lycopodiella inundata** | bog club-moss | Wet meadows and bogs | July-Sept | No |
| **Montia howellii** | Howell's montia | Moist-dry open lowland forest | April-July | Yes |
| **Ophioglossum pusillum** | *adder's tongue* | Wet-moist meadow | June-Sept | No |
| **Phlox hendersonii** | Henderson's phlox | Subalpine, dry, rocky, Scree | July-Sept | No |
| **Potentilla villosa** | villous cinquefoil | Subalpine, dry, rocky, scree | July-Sept | No |
| Ranunculus reconditus | *obscure buttercup* | Shrub-steppe grasslands | April-June | No |
| Romanzoffia thompsonii | mistmaiden | Vernally wet cliffs | April-June | No |
| *Scheuchzeria palustris var.americana* | scheuchzeria | Wet meadow, bog, fen | June-Sept | No |
| **Sisyrinchium sarmentosum** | pale blue-eyed grass | Moist-dry meadow | June-Aug | No |
| **Suksdorfia violacea** | violet suksdorfia | Moist cliffs, talus, rocky slopes | May-July | No |
| **Taushia stricklandii** | Strickland's taushia | Moist-dry meadow | June-Sept | No |
| **Wolffia borealis** | dotted water-meal | Pond, lake, gently flowing water | May-Sept | No |
| **Wolffia columbiana** | water-meal | Pond, lake, gently flowing water | May-Sept | No |
| **Bryophytes** | | | | |
| Rhizomnium nudum | moss | Moist mineral soil in forest habitat, 3000 – 5000 ft. | June - Oct | No |
| Schistostega pennata | green goblin moss | Moist mineral soil on rootwads | June-Oct | Yes |
| Scouleria marginata | moss | Rock and boulders in streams | May - Nov | No |
| Tetraphic geniculata | bent-awn moss | Large down wood in old growth forest | May-Oct | No |
| **Lichens** | | | | |
| Chaenotheca subroscida | pin lichen | Boles of live trees and snags in moist forest habitat. | May-Nov | Yes |
| Dermatocarpon luridum | lichen | Rock submerged in streams | May-Nov | No |

| *Species Name* | **Common Name** | **Habitat** | **Season** | **Habitat?** |
|---|---|---|---|---|
| **Lichens** | | | | |
| *Hypogymnia duplicata* | lichen | Conifer boles in areas of >90 inches of precipitation. | May - Oct | No |
| Leptogium burnetiae var. hirsutum | lichen | Bark of deciduous trees, down rotted logs and moss on rock. | May-Nov | Yes |
| Leptogium cyanescens | lichen | Moss and bark of deciduous and less often coniferous trees. | May-Nov | Yes |
| Lobaria linita | lichen | Lower bole of conifers and less often mossy boulders. | May-Nov | No |
| Nephroma occultum | lichen | Tree boles and branches in older forest habitat | May-Nov | No |
| Pannaria rubiginosa | lichen | Bark of conifer and deciduous trees in moist forest habitat. | May-Nov | Yes |
| Peltigera neckeri | lichen | Many substrates in moist forest. | May-Nov | Yes |
| Peltigera pacifica | lichen | On moss in moist forest habitats | May-Nov | Yes |
| Pilophorus nigricaulis | lichen | Rock on cool, north-facing slopes. | May-Nov | No |
| Pseudocyphellaria rainierensis | specklebelly | Tree boles of hardwoods and conifers in older forest habitat. | May-Nov | No |
| Ramalina pollinaria | lichen | Bark in moist, low-elevation habitats. | May-Nov | Yes |
| Tholurna dissimilis | lichen | Branches of krummolz at moderate to high elevations. | Jun-Oct | No |
| Usnea longissima | lichen | Branches of conifers and hardwoods in moist forest habitats. | Apr-Nov | Yes |

| *Species Name* | **Common Name** | **Habitat** | **Season** | **Habitat?** |
|---|---|---|---|---|
| **Fungi** | | | | |
| Bridgeoporus nobilissimus | noble polypore | Large true fir snags | May-Nov | No |
| Cordyceps capitata | earthtongue | Parasitic on deer truffles (Elaphomyces spp.) | Sept-Oct | Yes |
| Cortinarius barlowensis | mushroom | Montane coniferous forest to 4000 ft. | Sept-Nov | Yes |
| Cudonia monticola | earthtongue | Spruce needles and coniferous debris. | Aug-Nov | No |
| Gomphus kauffmanii | mushroom | Terrestrial in deep humus under pine and true fir | Sep-Nov | No |
| Gyromitra californica | mushroom | On or adjacent to well-rotted confer stumps and logs. | June | Yes |
| Leucogaster citrinus | truffle | Associated with the roots of conifers up to 6600 feet. | Aug-Nov | Yes |
| Mycena monticola | mushroom | Terrestrial in conifer forest to 3300 feet. | Aug-Nov | Yes |
| Otidea smithii | cup fungi | Terrestrial under cottonwood, Doug.-fir and w. hemlock. | Aug-Dec | Yes |
| Phaeocollybia attenuata | mushroom | Terrestrial in conifer forest. | Oct-Nov | Yes |
| Phaeocollybia californica | mushroom | Terrestrial associated with silver fir, Doug.-fir and w. hemlock | May, Oct-Nov | Yes |
| Phaeocollybia olivacea | mushroom | Terrestrial in low-elevation conifer forest. | Oct-Nov | Yes |
| Phaeocollybia piceae | mushroom | Terrestrial, associated with true fir, Doug.-fir and w. hemlock. | Oct-Nov | Yes |
| Phaeocollybia pseudofestiva | mushroom | Terrestrial under mixed conifers and hardwoods. | Oct-Dec | Yes |

| *Species Name* | **Common Name** | **Habitat** | **Season** | **Habitat?** |
|---|---|---|---|---|
| **Fungi** | | | | |
| Phaeocollybia scatesiae | mushroom | Terrestrial, associated with true fir and Vaccinium spp. | May, Oct-Nov | No |
| Ramaria amyloidea | coral mushroom | Terrestrial, associated with true fir, Doug.-fir and w. hemlock. | Sep-Oct | Yes |
| Ramaria geltiniaurantia | coral mushroom | Terrestrial, associated with true fir, Doug.-fir and w. hemlock. | Oct | Yes |
| Sowerbyella rhanana | cup fungi | Terrestrial in older conifer forest. | Oct-Dec | No |

**Step 2: Field Reconnaissance**

A field survey was conducted within the project area on July 27, 2004 covering the entire area as well as the adjacent perimeter. The boles and branches of most of the residual trees were scorched from ground-level to a height of 15 to 25 feet, leaving no habitat for arboreal species within the zone that could be surveyed. The fire had also consumed all litter, duff and most down wood, eliminating habitat for terrestrial species as well. The exceptions were small islands (<0.10 acre) of unburned vegetation. These areas are dominated by relatively old, large vine maple and rhododendron and harbor a relatively intact lichen and bryophyte community including species in the genera *Bryoria*, *Hypogymnia, Leptogium*, *Lobaria*, *Platismatia*, *Peltigera*, *Pseudocyphellaria*, *Usnea*, *Hypnum*, *Plagiothecium*, *Isothecium* and *Orthotrichum*. The common lichen species *Leptogium polycarpon* was found to be abundant in the moss growing on the boles of vine maple within the unburned islands. Inter-mixed with *L. polycarpum*, another *Leptogium* species was found that has been tentatively identified as the Sensitive species *Leptogium cyanescens*. Because at eye-level it is difficult to distinguish between the two species, there is no estimation of the abundance for *L. cyanescens* in the Project Area, but it is assumed present where the more common *Leptogium* occurs.

The survey did not occur during a time of year when Sensitive fungi species could be detected, with the exception of *Bridgeoporus nobilissimus*, a perennial conk. Field reconnaissance determined that little suitable habitat remains after thinning and the fire and the likelihood that these species occur in the Project Area is low.

**Step 3. Risk Assessment**

*L. cyanescens* belongs to a group of lichens that comprise the 10 percent of total lichen species known as cyanolichens. This group has cyanobacteria, or blue-green algae, as the photobiont component of the lichen, in addition to or rather than green algae. Cyanolichens are generally thought to require habitats with lower light levels and higher humidity than lichen species with a

green algal component only. Existing conditions in the project area may not be conducive to the persistence of this species because a reduction in stand density has occurred resulting in increased light levels and lower humidity. The further reduction of stand density that will result from the proposed action but will not likely have a cumulative effect on the population because of the existing open nature of the stand and the likelihood that even with no action, there will be some reduction in canopy cover over time as a result of tree mortality from the fire. The proposed action could adversely affect the population or individuals of *L. cyanescens* if equipment is driven through the unburned islands, trees are felled into these areas, or other mechanical disturbance of the unburned islands occur.

Currently, there are two known populations of *L. cyanescens* on the Mt. Hood National Forest. The consequence of the proposed action on the population or individuals in the proposed project area could result in local extirpation of the species.

For *Leptogium cyanescens* the proposed action will likely result in:

_____No Effect
_____Beneficial Effect
_X_ May Effect

**Recommendations:**

Mitigations that would result in a No Effect determination for *L. cyanescens* include the following:

1) Restrict equipment to areas outside the unburned islands.
2) Fell harvest trees away from unburned islands.
3) Do not yard logs through unburned islands.
4) Select trees near the unburned islands for green retention if available.

The Biological Evaluation is complete.

/s/ Marty Stein _____ August 4, 2004__
Marty Stein, Botanist Date